

DEP-3**SERVICE NOTES**

First Edition

SPECIFICATIONS**Input Level/Impedance**

+4dBm/47kΩ
-20dBm/47kΩ

Stereo Output Level/Impedance

+4dBm (+18dBm max.)/600Ω
-20dBm (-5dBm max.)/600Ω

A/D-D/A Conversion

16 bit Linear

Sampling Frequency

32kHz

Frequency Response

10Hz to 50kHz +0 dB (Direct)
-3 dB (Reverb)

30Hz to 12kHz +1 dB (Reverb)
-3 dB (Reverb)

SN Ratio (IHF A at Rated Input)

82dB (Direct)
76dB (Reverb)

Dynamic Range

Over 94dB (Direct)
Over 86dB (Reverb)

Total Harmonic Distortion

(at 1kHz, Rated Input)
Below 0.02% (Direct)
Below 0.08% (Reverb)

Pre-delay Time

0 to 120ms (Reverb Mode)
0 to 120ms (Non-linear Mode)

Reverb Time

0.1 to 99s (Reverb Mode)
0.1 to 10s (Non-linear Mode)

HF Damp Control

x0.05 to x1.0

Gate Time

10 to 450ms

Delay Time

2 to 500ms

Reverb

Room : 1.0 to 15 (3 steps)
Hall : 15 to 26 (3 steps)
Plate : A and B

Equalizer

Low	Frequency	100Hz
	Boost/Cut	±12dB
Mid	Frequency	1kHz
	Boost/Cut	±12dB
High	Frequency	10kHz
	Boost/Cut	±12dB

Power Consumption

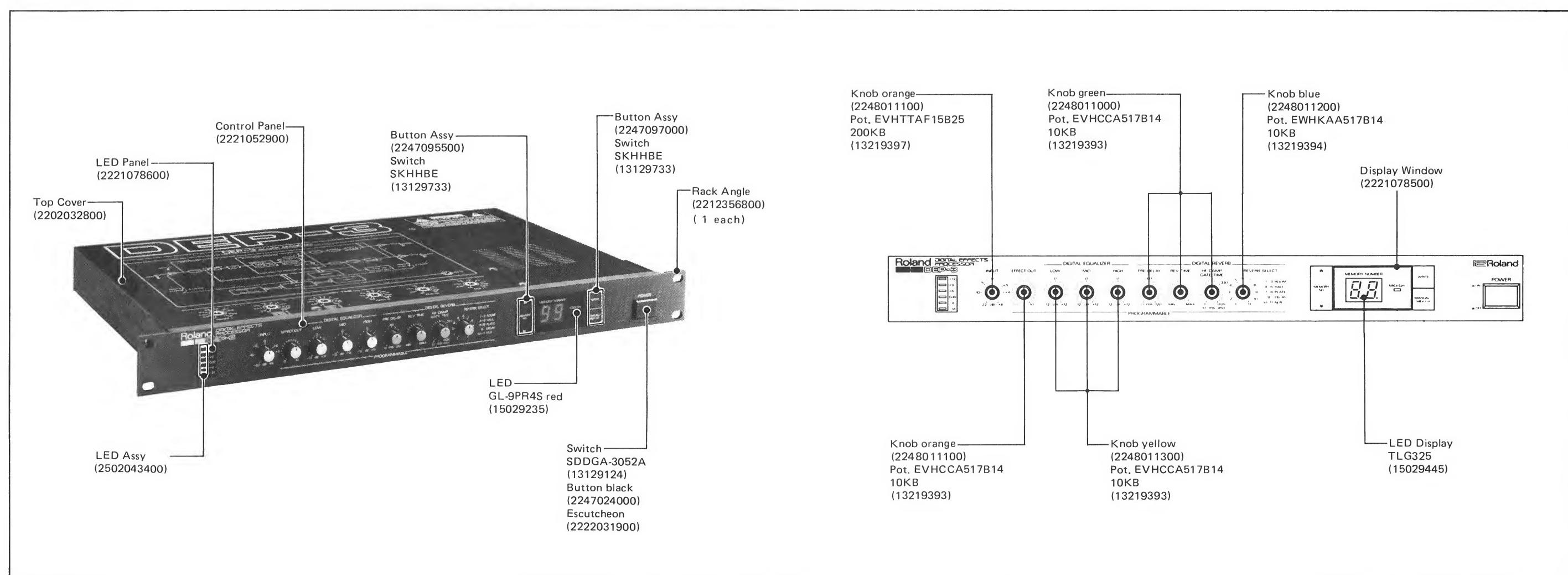
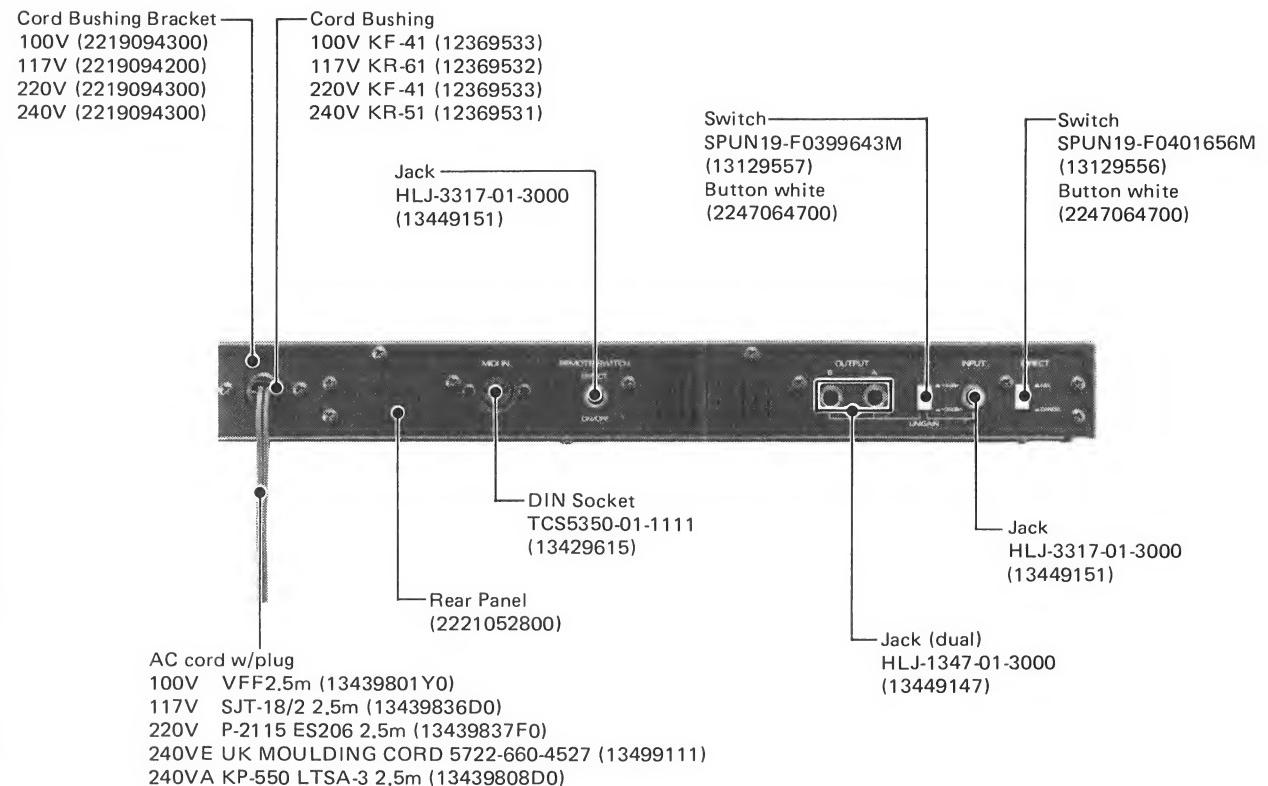
15W

Dimensions

482 (W) x 47 (H) x 289 (D) mm
19 (W) x 1-7/8 (H) x 11-3/8 (D) in.

Weight

3.5 kg/7 lb. 12 oz.

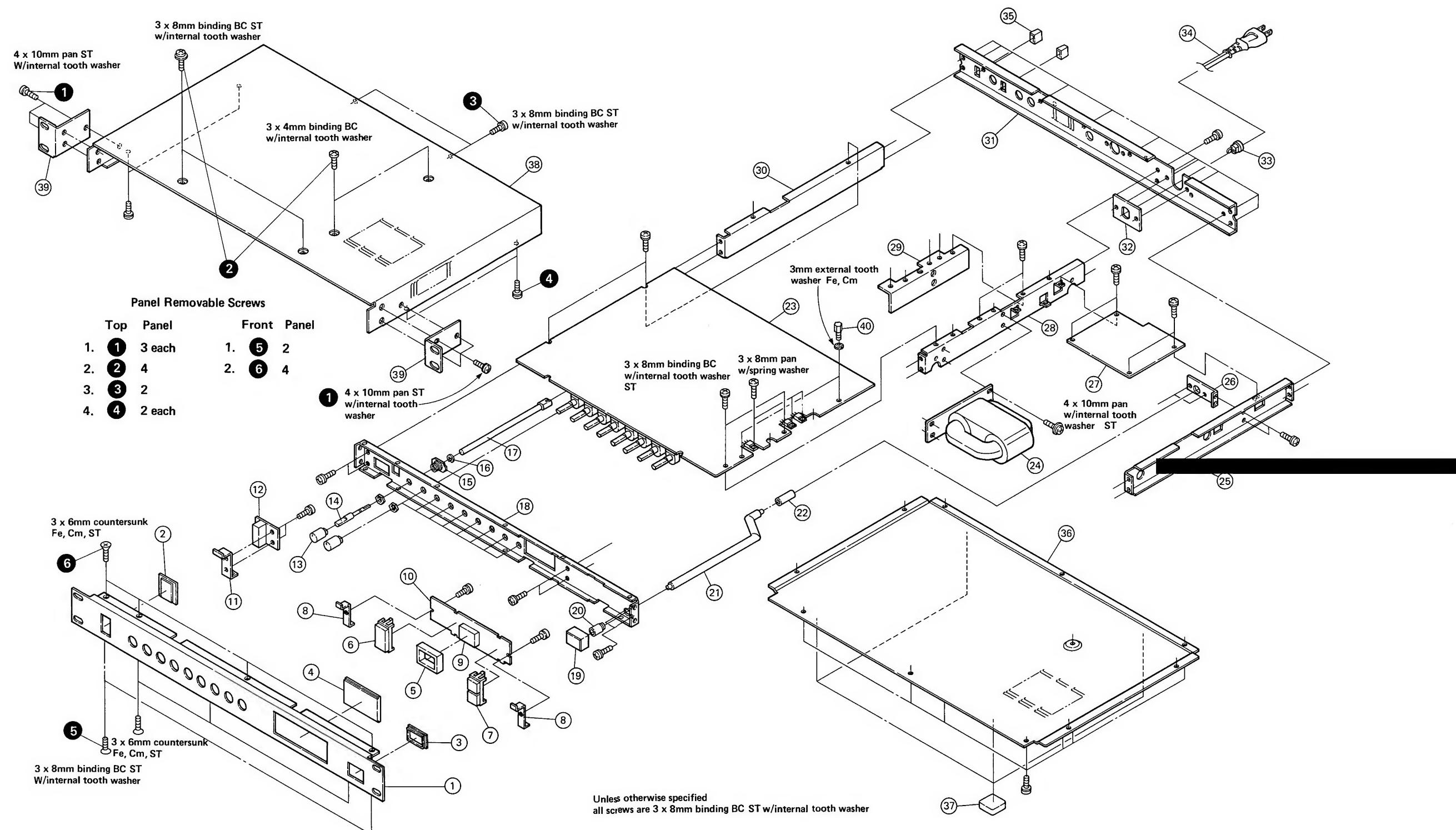


PARTS LIST

CASING	POTENTIOMETER			AC CORD
2202032800	Top Cover	13219397	EVHTTA15B25	200KB
2202032900	Bottom Cover	13219393	EVHCCA517B14	10KB
2221052900	Control Panel	13219394	EWHKAA517B14	10KB
2221052800	Rear Panel	13299115	H1051A015-22KB	trimmer
2212356800	Rack Angle	13299197	EVND4AA00B15	trimmer
2221078500	Display Window			
2221078600	LED Panel (Level Meter Window)			
2281056400	Front Chassis			
2281056500	Power Transformer Chassis	15179256	μPD78C10G	CPU (external ROM version)
2281056700	Side Chassis left	15179828	MBM27C128-20	EP ROM
2281056600	Side Chassis right	15179263	μPD78C14G	CPU (w/built-in ROM)
2246049600	Heat Sink			Substituting 14G type to 10G makes EP ROM idle.
2235031300	Foot(square mat)			14Gが17"を使用した場合、EP ROMは不用となる
222031900	Escutcheon			
KNOB, BUTTON	IC			RESISTOR
2248011000	Knob 8mm dia green	15149121	M54522P	transistor array
2248011100	Knob 8mm dia orange	15159503	TC40H000P	(40H only) quad NAND gate
2248011200	Knob 8mm dia blue	15159540	TC74HC373P	(74HC only) octal D-F/F
2248011300	Knob 8mm dia yellow	15169517	74F04	(F type only) hex inverter
2247024000	Button black	15179373	μPD446C-2L	S RAM
2247064700	Button white	15179376	MB81416-10	D RAM
2247095500	Button Assy	15189111J1	NJM-311D	Comparator
2247097000	Button Assy	15189129	TL072	OP amp
		15189132	NJM-4556D	OP amp
		15189186	μPC4570C	OP amp
		15199147	M5F7815	voltage regulator
		15199148	M5F7915	voltage regulator
		15199149	M5F7805	voltage regulator
		15219116	IR-2E02	LED driver
		15219176	NJU-7301D	analog switch
		15219178	PCM-54HP-S	D/A converter
		15229712	PC900	opto-isolator
		15229859	MB87126A-007	Roland custom IC (reverb)
JACK, SOCKET	TRANSISTOR			CAPACITOR
13449147	HLJ-1347-01-3000	15119125	2SA-1115-28-F	
13449151	HLJ-3317-01-3000	15129130	2SC-1583F	
13429615	DIN Socket TCS5350-01-1111	15129136	2SC-2878-A	
13429531	DICF-T28AS-E	15129137	2SC-2603-28-F	
		15129171	DTC-114ES SPT	(w/built-in bias resistors)
POWER TRANSFORMER	DIODE			CRYSTAL
22450472N0	100V	15019124	1S-188FM1-UB4	
22450473C0	117V	15019125	1SS-133	
22450474D0	220V	15019251	1N-4007	
22450475A0	240V	15019270	10DF1	
COIL		15019275	3B4B41	bridge rectifier
		15019404	MTZ6.2B	zener
PCB	LED			CONNECTOR
7413840000	Main Board	15029445	TLG325	dual 7-seg
7413844000	Switch Board	15029235	GL-9PR4S	red
7413845100	Power Supply Board	100V	2502043400	level meter
7413845300	Power Supply Board	117V		
7413845400	Power Supply Board	220V, 240V		
		2502043400	LED ASSY	
FUSE				MISCELLANEOUS
7413840000	(pcb 2292040300)	12559532	CEE T630 mA	100V
7413844000	(pcb 2292040400)	12559413	SD6 630 mA	117V
7413845100	(pcb 2292045700)	12559509	CEE T315 mA	220V, 240V
7413845300	(pcb 2292045700)			
7413845400	(pcb 2292045700)			
	For LED Meter see LED section.			

EXPLODED VIEW 分解図

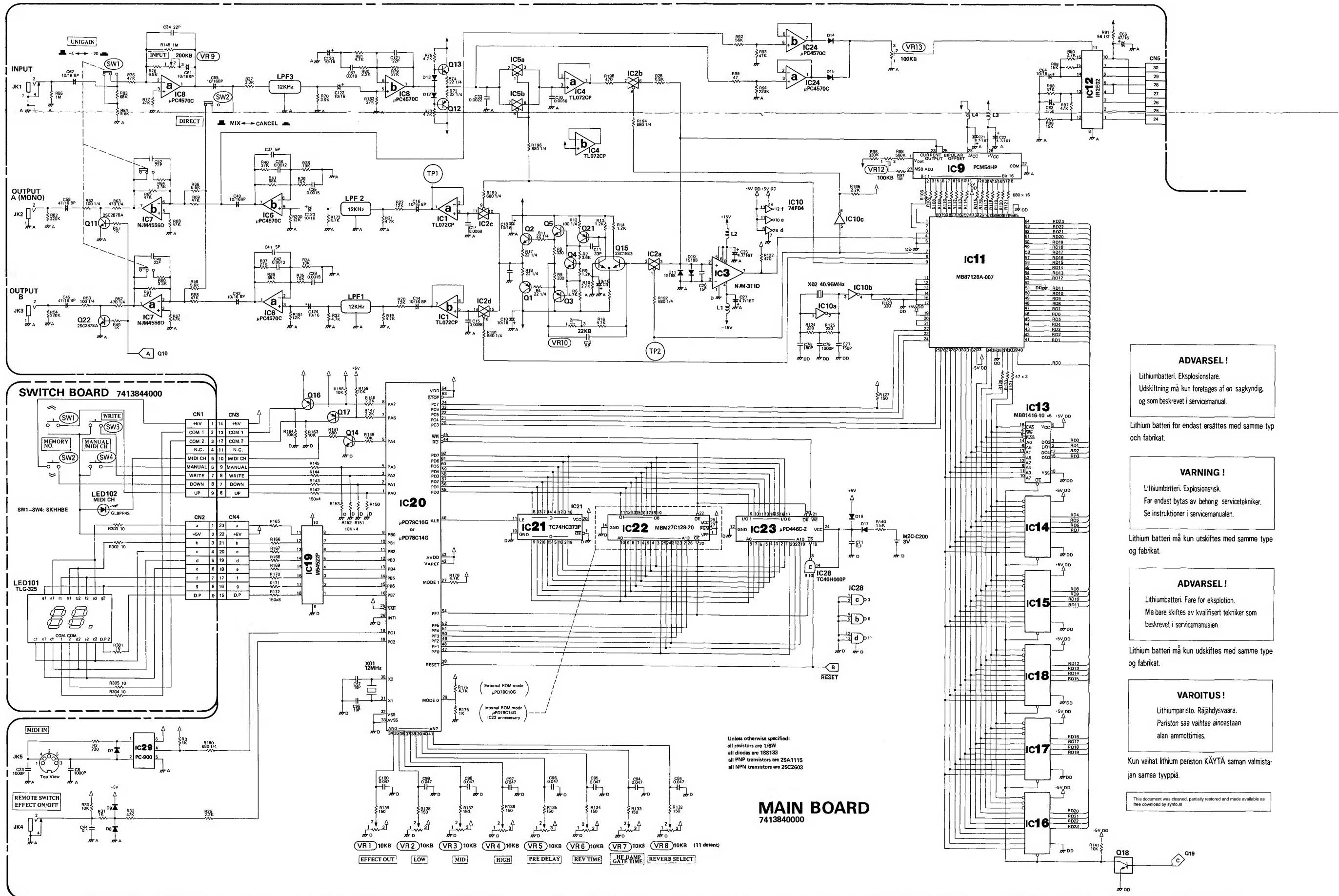
1 Control Panel	コントロールパネル	(2221052900)	14 Extension Shaft, Coupling EWK81A037 延長シャット,カップリング	(12149323)	30 Side Chassis (L)	サイドシャーシ(L)	(2281056700)
2 LED Panel (Level Meter Window)	LEDパネル	(2221078600)	15 Extension Shaft, Coupling EWK81A037 延長シャット,カップリング	(12149323)	31 Rear Panel	リアパネル	(2221052800)
3 Escutcheon	エスカッショーン	(2222031900)	16 Extension Shaft VRスリーブ	(2215040900)	32 Cord Bushing Bracket	コードブッシュホールダ100/220/240V	(2219094300)
4 Display Window	表示器パネル	(2221078500)	17 Extension Shaft VRスリーブ	(2215040900)	33 Cord Bushing	コードブッシュ100/220V	(2219094200)
5 Cushion	クッション	(2226023500)	18 Front Chassis フロントシャーシ	(2281056400)	34 AC Cord	ACコード100V	(12369533)
6 Button Assy blk	ボタン完成品	(2247095500)	19 Button black ボタン黒	(2247024000)	35 Button white ボタン白	ボタン白	(13439801Y0)
7 Button Assy blk	ボタン完成品	(2247097000)	20 Sleeve スリーブ	(2215040100)	36 Bottom Cover ボトムカバー	ボトムカバー	(2247064700)
8 Switch Bracket	スイッチボードホルダ	(2219092300)	21 Extension Shaft アーム	(2214020700)	37 Rubber Foot ゴム足	ゴム足	(2202032900)
9 LED Display TLG325	LED表示器 TLG325	(15029445)	22 Coupling スリーブ	(2215040200)	38 Top Cover トップカバー	トップカバー	(2235031300)
10 Switch Board	スイッチ基板	(7413844000)	23 Main Board メイン基板	(7413840000)	39 Rack Angle ラックアングル	ラックアングル	(2202032800)
11 LED Board Bracket	LEDボードホルダ	(2219092200)	24 Power Transformer 100V 電源トランス	(22450472N0)	40 Boss nut #215-575 ポスナット	ポスナット	(2212356800)
12 LED Assy (Level Meter)	レベルLED完成品	(2502043400)	117V 220V 240V	(22450473C0) (22450474D0) (22450475A0)			(2215057500)
13 Knob 8mm dia.	ツマミ		25 Side Chassis (R) サイドシャーシ(R)	(2281056600)			
green	緑	(2248011000)	26 Power Switch Bracket パワースイッチホルダ	(2219086100)			
orange	橙	(2248011100)	27 Power Supply Board 電源基板	(7413855000)			
blue	青	(2248011200)	28 Power Transformer Chassis トランスシャーシ	(2281056500)			
yellow	黄	(2248011300)	29 Heat Sink ヒートシンク	(2246049600)			



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47

CIRCUIT DIAGRAM

See P.7 for replaced LPFs 1, 2 and 3. LPF1,2および3についてはP.7の変更案内参照。



MAIN BOARD

7413840000

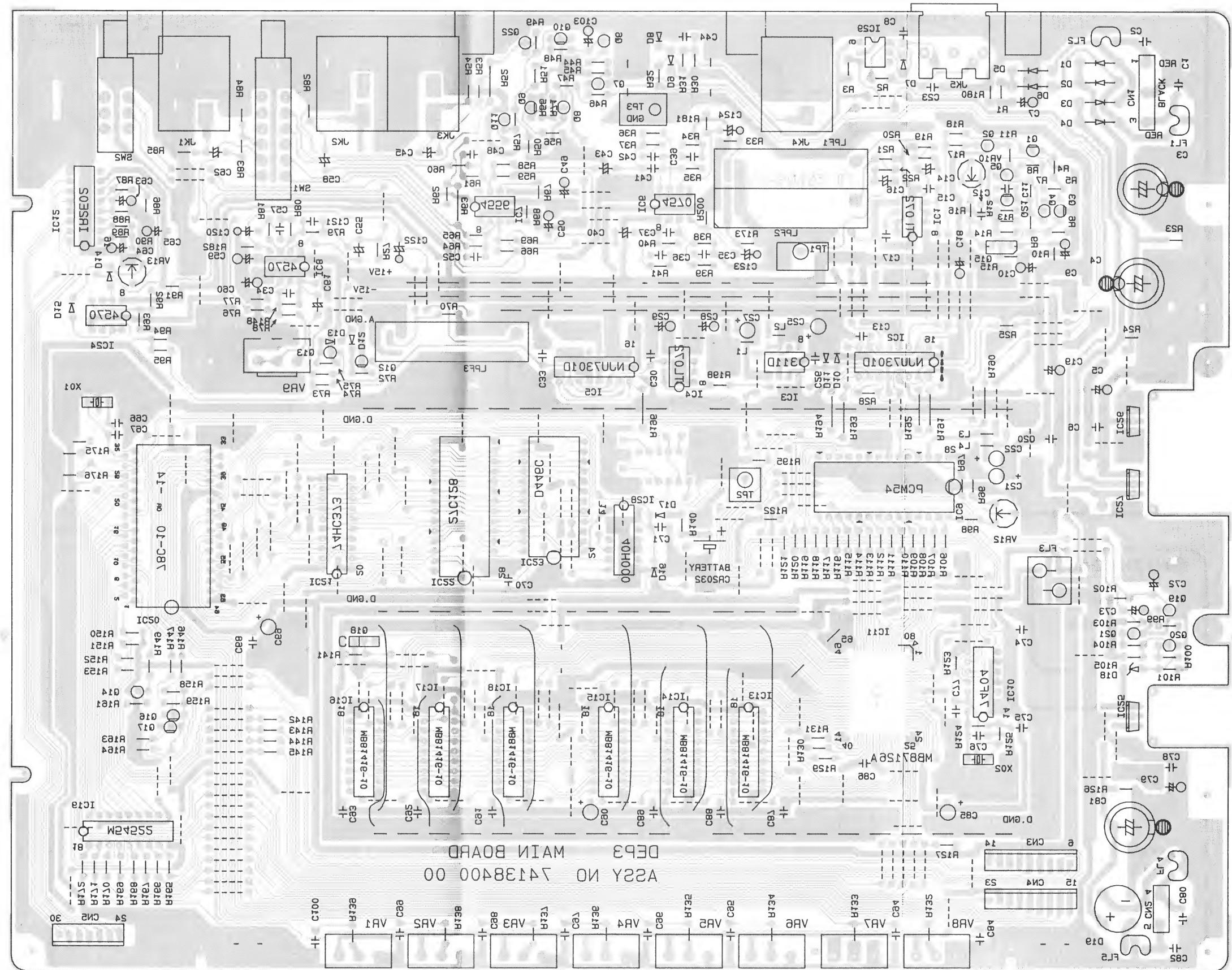
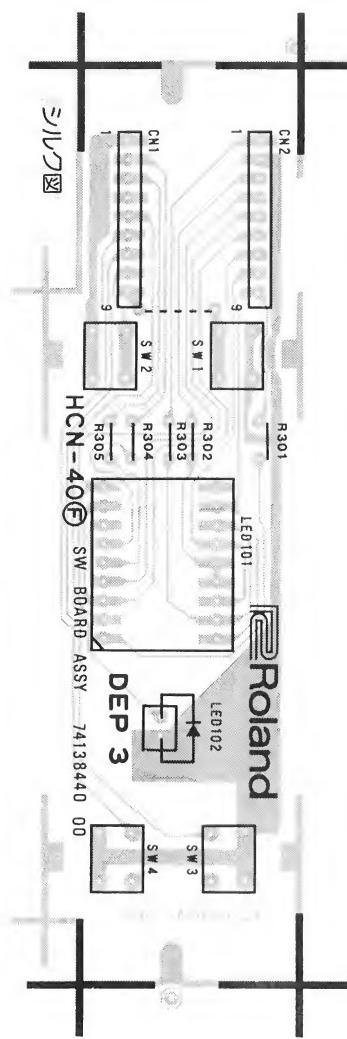
(pcb 2292040300

View from foil side

SWITCH BOARD

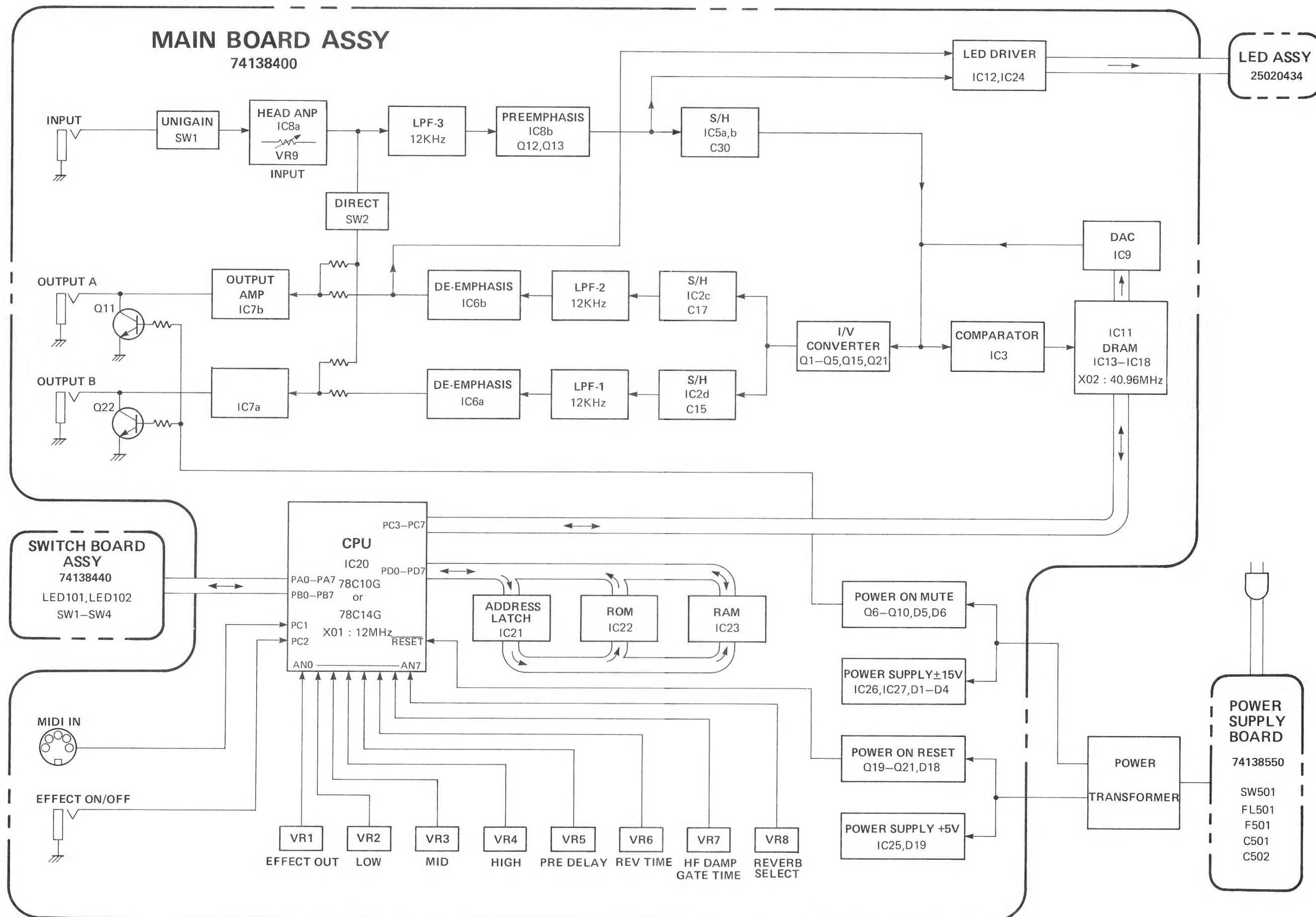
7413844000

(pcb 2292040400)

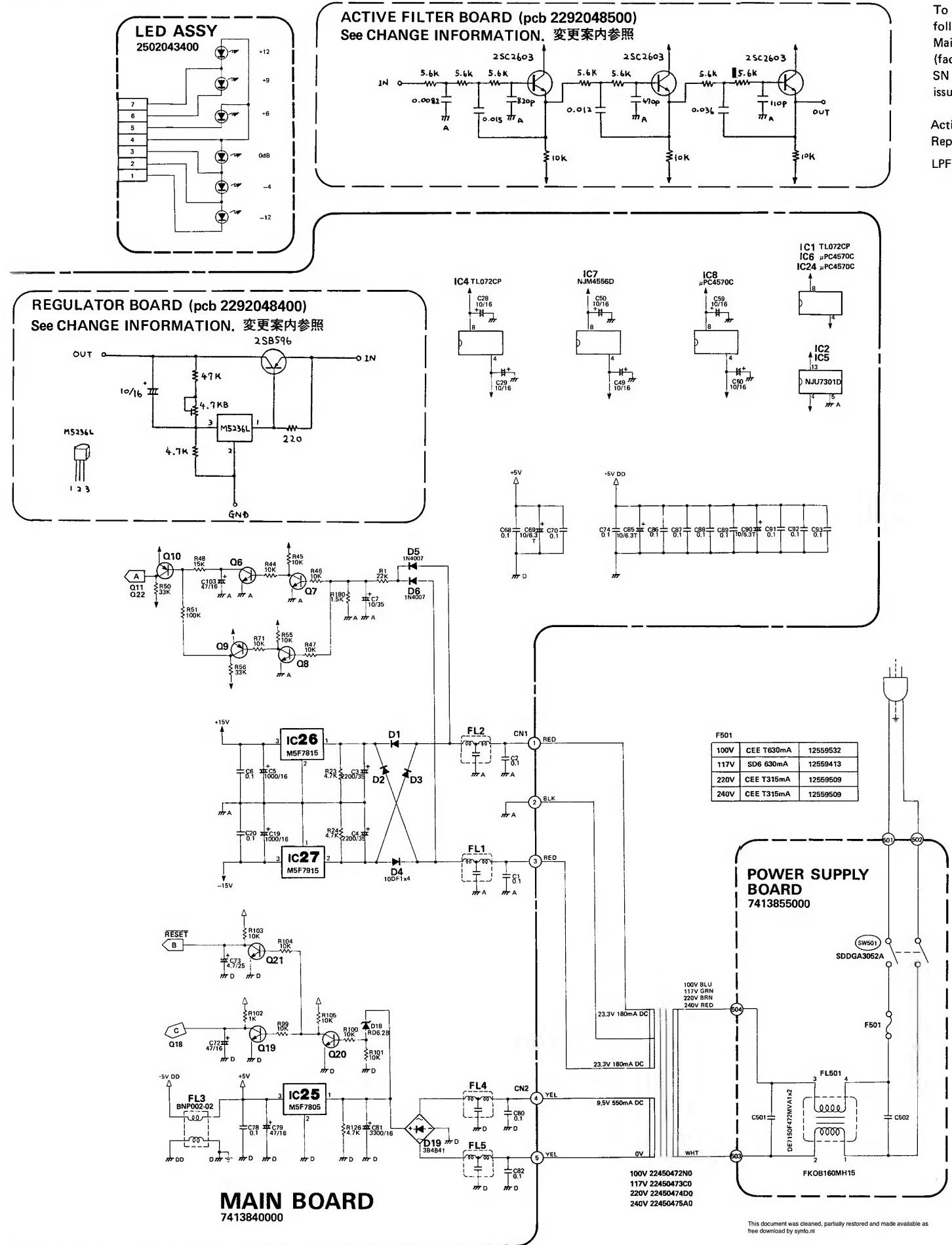


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

BLOCK DIAGRAM



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49

CIRCUIT DIAGRAM**CHANGE INFORMATION** 変更案内

To improve circuit performance the following PCBs are piggybacked on the Main Board as attaching components (factory production only). Effective SN is not fixed yet as date of this issue.

回路改善のため下記基板をメインボードの附属基板として搭載(工場生産のみ)実施製番は本サービスノート発行時点では未定。

Active Filter Board
Replaces LPFs 1, 2 and 3, respectively.

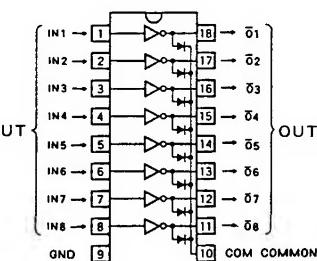
LPF1,2および3の置換

Regulator Board
Replaces IC26, regulator.

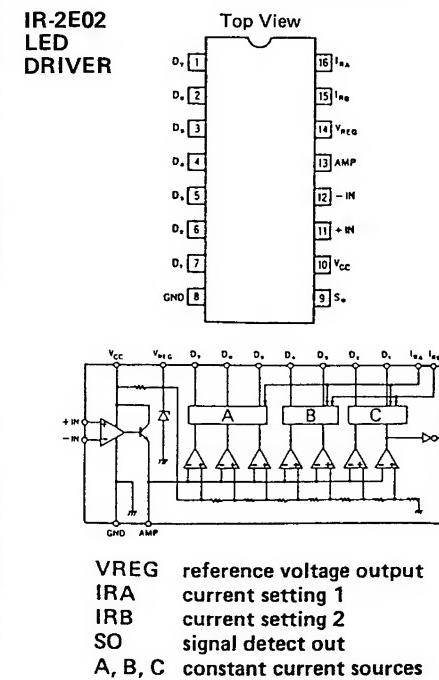
レギュレータIC26の置換

IC DATA

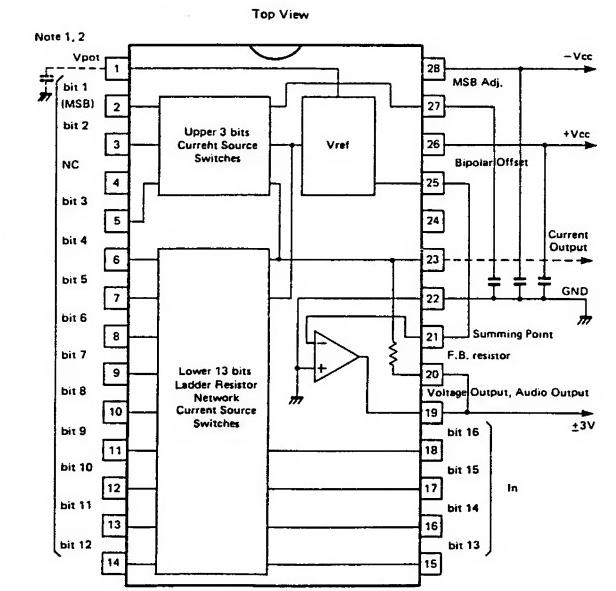
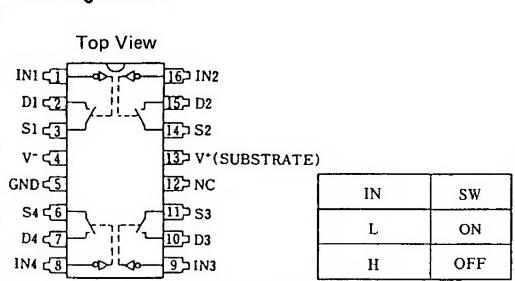
M54522P
8-Unit 400mA Darlington Transistor Array with Clamp Diode



Pin Configuration (Top View)

IR-E02 LED DRIVER

V_{REG} reference voltage output
IRA current setting 1
IRB current setting 2
SO signal detect out
A, B, C constant current sources

PCM-54
Digital to Analog Converter**NJU7301**
Analog Switch

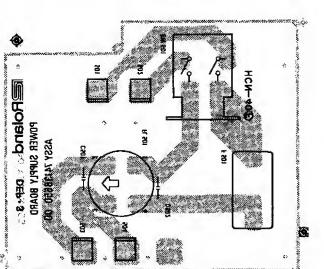
IN	SW
L	ON
H	OFF

POWER SUPPLY BOARD

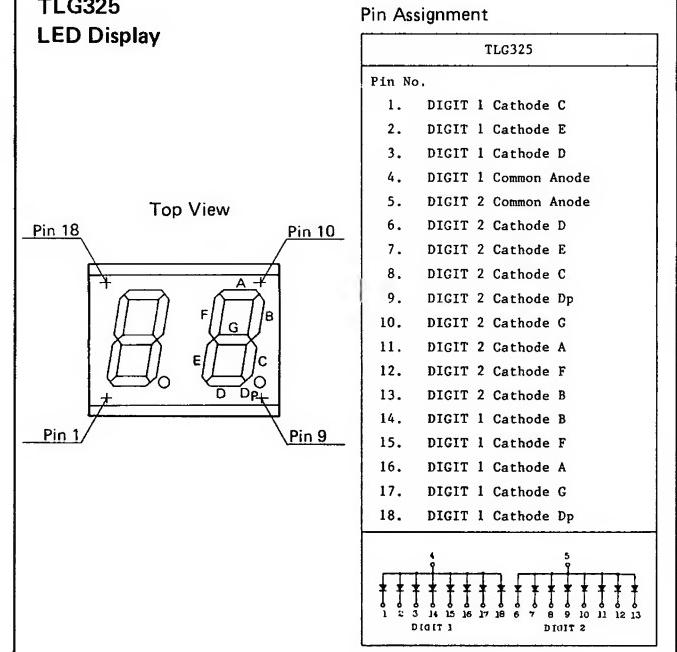
7413845100 100V

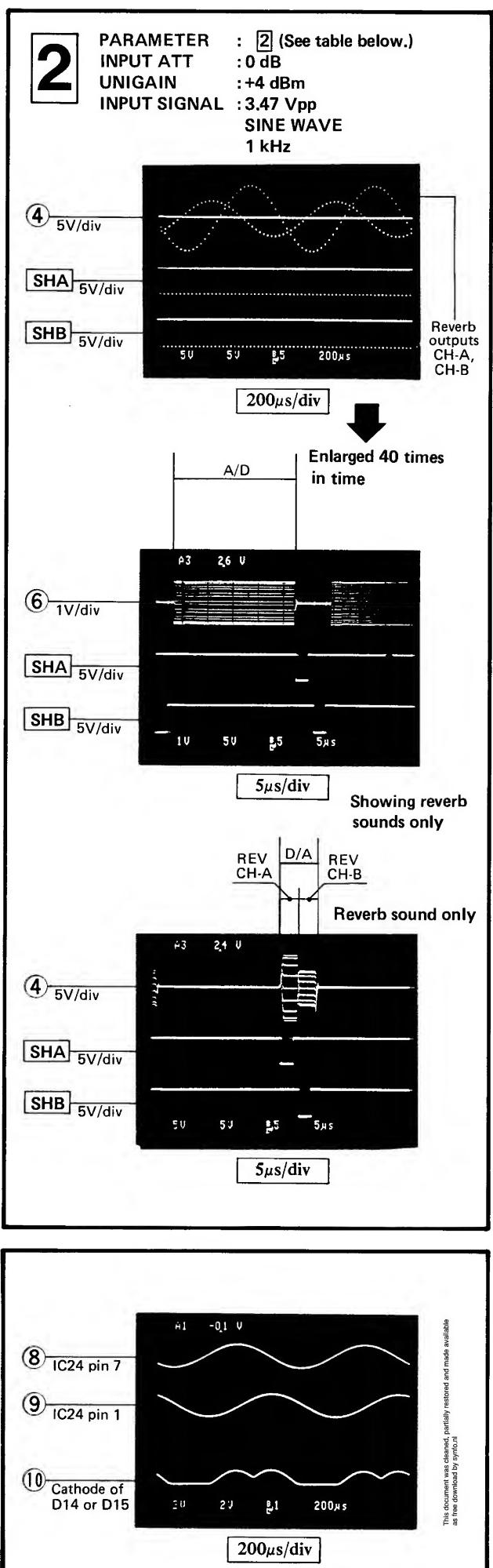
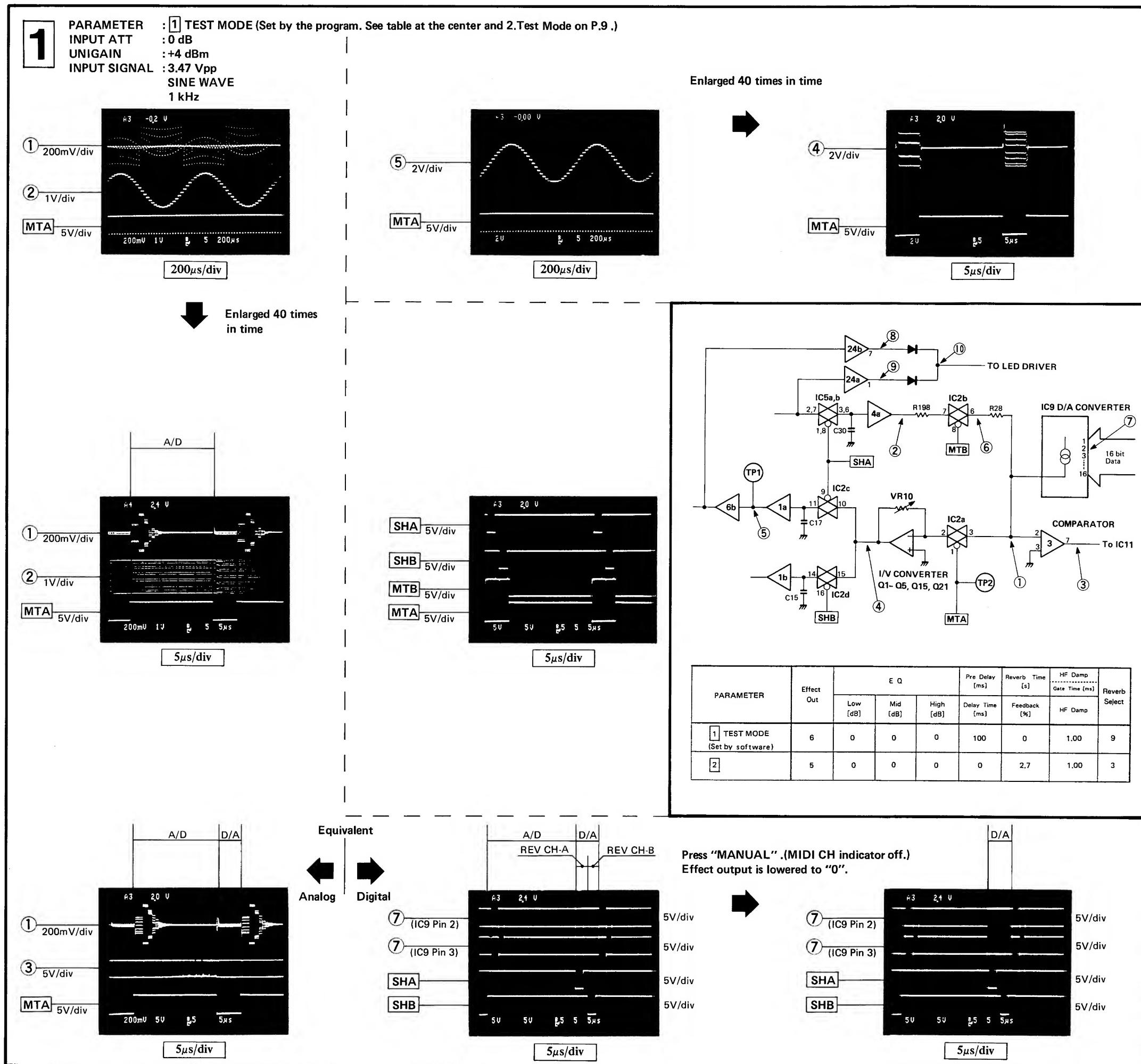
7413845300 117V

7413845400 220/240V



View from foil side

TLG325
LED Display



CHECKING AND ADJUSTING

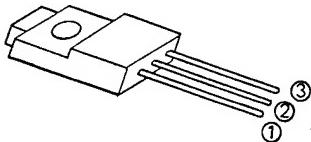
1. Voltages (Main Board)

1-1. Battery

With power off verify more than +3V on D17 anode with respect to the digital ground (D).

1-2. DC Supplies

With power on verify the following voltages with respect to the respective ground.



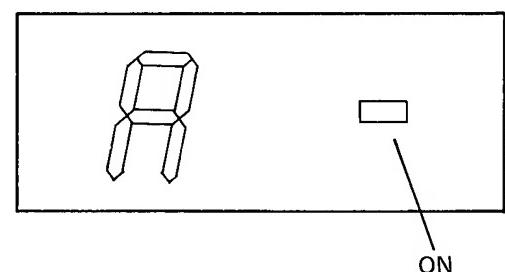
IC25 pin 3 +4.8 to +5.2V
IC26 pin 3 +14.4 to +15.6V
IC27 pin 3 -15.6 to -14.4V

2. Test Mode

The following checks and adjustments can be carried out in the test mode provided.

2-1. Entering Test Mode

While pressing MANUAL, turn the DEP-3 on. The display will show the test mode sign as shown below.



NOTES

- EFFECT Default setting is on in the test mode: MIDI CH Indicator will serve as EFFECT ON indicator. Effect is toggled by MANUAL.
- INPUT ATT Panel controls (VRs) other than INPUT (VR9) are defeated during the test mode.

3. DAC Level, Level LEDs (Main Board)

- Setup
(DEP-3) DIRECT MIX
UNIGAIN +4dBm
(Audio Generator) +4dBm, 1kHz, sine into INPUT
(Meter) Millivoltmeter into OUTPUT A

- 3-1. Press MANUAL, verify that MIDI CH indicator is off.
Adjust INPUT ATT for +4dBm reading on the millivoltmeter.

点検および調整

1. 電圧(メインボード)

1-1. バッテリ

電源オフの状態で、D17 カソード電圧を測定する。
3V以上であること。

1-2. DC電源

電源をオンにする。下記電源電圧を確認する。

IC25 pin 3 +4.8 to +5.2V
IC26 pin 3 +14.4 to +15.6V
IC27 pin 3 -15.6 to -14.4V

2. テスト・モード

以下の調整、点検はテストモードに入ってから行なって下さい。

2-1. テストモードへの入り方

MANUAL ボタンを押しながら電源を入れる。下図のような表示が出る。

3-2. Set DIRECT to CANCEL.

Press MANUAL; verify that MIDI CH indicator is on.
Adjust VR10 for +4dBm reading.

3-3. Shift millivoltmeter to OUTPUT B; verify +4dBm reading.

3-4. Set DIRECT to MIX.

Press MANUAL; MIDI CH indicator will go off.
Adjust VR13 so that level LEDs -14dBm to 0dBm are lit.

3-5. Set UNIGAIN to -20dBm; verify the all LEDs up to +12dBm are lit.

3-6. Lower AG output level to -20dBm; verify that LEDs +6dBm to +12dBm are off.

3-2. DIRECT スイッチを CANCEL 側に設定する。

MANUAL を押す。MIDI CH インジケータが点灯する。

ミリボルトメータの指示が +4 dBm になる様 VR10 を調整する。

3-3. ミリボルトメータを OUTPUT ジャックの B へ接続する。指示が +4 dBm であることを確認。

3-4. DIRECT スイッチを MIX 側に設定する。

MANUAL を押す。MIDI CH が消灯する。
-14 dBm から 0 dBm までの LED が点灯する様 VR13 を調整する。

3-5. UNIGAIN を -20 dBm 側に設定する。+12 dBm まで全LEDが点灯することを確認。

3-6. 発振器の出力を -20 dBm に下げる。+6 dBm から +12 dBm の LED が消灯することを確認。

4. Dynamic Range (Main Board)

Setup

(DEP-3) DIRECT CANCEL
UNIGAIN +4dBm

(Audio Generator) -40dBm, 1kHz, sine into INPUT

(Distortion meter) Into OUTPUT A through IHF-A filter

4-1. Adjust VR-12 for less than 5% distortion factor.

4. ダイナミックレンジ(メインボード)

設定

(DEP-3) DIRECT CANCEL
UNIGAIN +4 dBm

(低周波発振器) -40 dBm, 1 kHz, サイン

… INPUT ジャックへ

(歪率計) JIS-A フィルタを介して
OUTPUT A ジャックへ

4-1. 歪率が最少(5%以下)になる様 VR12 を調整する。

注

•エフェクト

テストモードにおける初期設定は“オン”的状態で、MIDI CH インジケータが点灯します。MANUAL ボタンによりオン／オフの切換が出来ます。

•INPUT ATT

INPUT 以外のパネル上のボリュウムはテストモード中無効です。

3. D/Aレベル, レベルLED(メインボード)

設定

(DEP-3) DIRECT MIX

UNIGAIN +4dBm

- 3-1. Press MANUAL, verify that MIDI CH indicator is off.

- Adjust INPUT ATT for +4dBm reading on the millivoltmeter.

(Audio Generator) +4dBm, 1kHz, sine into INPUT

(Meter) Millivoltmeter into OUTPUT A

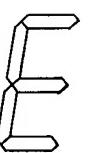
3-1. MANUAL を押す。MIDI CH インジケータが消灯する。

ミリボルトメータの指示が +4 dBm になる様 INPUT アッテネーターを調整する。

ERROR MESSAGES

CPU will display an error message should it detect a malfunction during play mode.

Exp.



表示例



メッセージの内容は次の通りです。

- E1 Failure in writing into or reading from RAM, IC23
- E2 Failure in initializing digital signal processor IC11
- E3 Failure in transferring data to IC11 during the initialization
- E4 Failure in transferring data to IC11

MODEL DEP-3 MIDI Implementation Chart

Date : Jan. 05. 1987
Version : 1.0

	Function.....	Transmitted	Recognized	Remarks
Basic Channel	Default Changed	X X	1 - 16 1 - 16	memorized
Mode	Default Messages Altered	X X *****	1 , 3 OMNI ON/OFF	memorized
Note Number	True voice	X *****	X X	
Velocity	Note ON Note OFF	X X	X X	
After Touch	Key's Ch's	X X	X X	
Pitch Bender		X	X	
Control Change		X	X	
Prog Change	True #	X *****	○ 0 - 127 ** 0 - 98	
System Exclusive		X	○	Parameters
System Common	Song Pos Song Sel Tune	X X X	X X X	
System Real Time	Clock Commands	X X	X X	
Aux Mes-sages	Local ON/OFF All Notes OFF Active Sense Reset	X X X X	X X X X	
Notes	** n : Program Change Number When $0 \leq n \leq 98$, it corresponds with Memory Number n+1. When $n \geq 99$, it corresponds with Memory Number n-98.			

Mode 1 : OMNI ON, POLY
Mode 3 : OMNI OFF, POLY

Mode 2 : OMNI ON, MONO
Mode 4 : OMNI OFF, MONO

○ : Yes
X : No

1. RECOGNIZED RECEIVE DATA			
STATUS	Second	Third	Description
1100 nnnn	Oppp	PPPP	Program Change PPPPPPP = 0 - 127
1011 nnnn	0111	1100 0000 0000	OMNI OFF
1011 nnnn	0111	1101 0000 0000	OMNI ON
1111 0000 1111 0111	System exclusive

2. RECOGNIZED EXCLUSIVE MESSAGE	
Exclusive message is based on following structure	
Byte	Description
a 1111 0000	Exclusive status
b 0100 0001	Roland ID #
c 0000 nnnn	Device-ID # = MIDI basic channel where nnnn + 1 = channel #
d 0001 0010	Model-ID # (DEP-3)
e 0001 0010	Command-ID # (DT1)
f 0aaa aaaa	Address MSB
g 0bbb bbbb	Address LSB
j 0ccc cccc	Data
k 0ddd dddd	Data
l 0eee eeee	Data
m 0fff ffff	Data
n 0ggg gggg	Data
o 0hhh hhhh	Data
p 0iii iiiii	Data
q 0jjj jjjj	Data
r 0kkk kkkk	Checksum
s 1111 0111	End of System Exclusive

Notes :

*2-1 If aaaaaaaaa - bbbbbbbb doesn't indicate the top address of the parameter, the message will be ignored.

*2-2 Summed value of the all bytes between Command-ID and EOX must be 00H (7 bits). It is not include Command-ID and EOX.

3. Address mapping of parameters

Address of parameter

0000 : Temporary parameter

0	: 00aa aaaa : EFFECT OUTPUT LEVEL
1	: 00bb bbbb : BOOST/CUT OF LOW FILTER
2	: 00cc cccc : BOOST/CUT OF MIDDLE FILTER
3	: 00dd dddd : BOOST/CUT OF HIGH FILTER
4	: 00ee eeee : PRE DELAY or DELAY TIME
5	: 00ff ffff : REVERB TIME or FEEDBACK OF DELAY
6	: 00gg gggg : HF DAMP or GATE TIME
7	: 00hh hhhh : REVERB SELECT

0080 : Memory number 1

0	: 00aa aaaa : EFFECT OUTPUT LEVEL
1	: 00bb bbbb : BOOST/CUT OF LOW FILTER
2	: 00cc cccc : BOOST/CUT OF MIDDLE FILTER
3	: 00dd dddd : BOOST/CUT OF HIGH FILTER
4	: 00ee eeee : PRE DELAY or DELAY TIME
5	: 00ff ffff : REVERB TIME or FEEDBACK OF DELAY
6	: 00gg gggg : HF DAMP or GATE TIME
7	: 00hh hhhh : REVERB SELECT

0100 : Memory number 2

:

0180 : Memory number 3

:

3180 : Memory number 99

:

Notes :

The actual values obtained on the DEP-3 differ from the values sent with MIDI (#0-#63).

From the Roland distributor in your country, you can attain the table that shows how the MIDI values correspond to the actual values on the DEP-3.